

REMARKS

Reconsideration and withdrawal of the rejections of the application are respectfully requested in view of the above amendments and the following remarks.

I. STATUS OF THE CLAIMS AND FORMAL MATTERS

Claims 1-64 are pending in this application. Claims 1, 18, 30, 46, 47, 49, 55, 59, and 62 are hereby amended. Claim 9 has been canceled without prejudice. New claim 65 has been added. Support for these amendments may be found throughout the application as originally filed. No new matter has been introduced.

The information disclosure statement filed 12/22/05 was objected to under 37 C.F.R. §1.98(a)(2) for failing to provide legible copies of the cited foreign patent documents. Legible copies of these documents are submitted herewith.

Changes to the claims are not made for the purpose of patentability within the meaning of 35 U.S.C. §101, §102, §103, or §112. Rather, these changes are made simply for clarification and to round out the scope of protection to which Applicant is entitled.

II. OBJECTION TO THE CLAIMS

Claims 1, 18, 30, 46, 47, 59, and 62 were objected to on the basis of minor typographical errors. These claims have been accordingly amended. Reconsideration and withdrawal of these objections are, therefore, respectfully requested.

III. THE REJECTIONS UNDER 35 U.S.C. § 112

Claim 9 was rejected under 35 U.S.C. §112, second paragraph, as being indefinite for

failing to particularly point out and distinctly claim the subject matter which Applicant regards as the invention. Particularly, claim 9 was rejected for being written as an omnibus type claim. Claim 9 has been canceled without prejudice. Reconsideration and withdrawal of this rejection is, therefore, respectfully requested.

IV. THE REJECTIONS UNDER 35 U.S.C. § 103

Claims 1-9, 15-16, and 18-25 were rejected under 35 U.S.C. §103(a) as being unpatentable over U.S. Patent No. 5,806,205 to Varvat (“*Varvat*”) in view of U.S. Patent No. 5,263,267 to Buttner et al. (“*Buttner*”).

Claim 17 was rejected under 35 U.S.C. §103(a) as being unpatentable over *Varvat*, Buttner, and U.S. Patent No. 4,661,290 to Sauda et al. (“*Sauda*”).

Claims 10-14 and 26-30 were rejected under 35 U.S.C. §103(a) as being unpatentable over *Varvat*, *Buttner*, and U.S. Patent No. 4,926,764 to Van Den Broek (“*Van Den Broek*”).

Claims 31-64 were rejected under 35 U.S.C. 103(a) as being unpatentable over *Buttner* and *Van Den Broek*.

Independent Claim 1

Claim 1 recites, inter alia:

“A vessel for drying organic waste, the vessel comprising at least two elongate channels, each channel having a length and a substantially segment shaped cross section, with a radius of between 0.25 m and 0.75 m.” (Emphasis added)

Neither the *Varvat* nor *Buttner* reference discloses or suggests “a [channel] radius of between 0.25 m and 0.75 m.”

According to *column 3, lines 50-64 of Varvat*, the main processing zone 14 (FIG. 1) comprises seven trough banks in a superposed relationship that define a serpentine path for

transporting the particulate material to be dehydrated through the apparatus. The structure of the trough banks designated comprehensively by the reference numeral 20 is best shown in FIGS. 2 and 3. Each troughs bank includes eight open-top troughs 22 arranged in a parallel relationship and lying in a common plane. Each trough 22 has a gutter-like rounded portion in the form of a longitudinally truncated cylinder whose diameter increases from the outlet end 26 of the trough to its inlet end 28. The purpose of this arrangement is to provide a path for the particulate material being treated that progressively narrows to compensate for the reduction of volume in the material as a result of water evaporation.

According to *column 15, lines 11-21 of Buttner*, in actual practice, units with twin counter-rotating screws of about 10-12 inches (25-30 centimeters) should operate smoothly and with good efficiencies at speeds in the range of about 15 to about 25 or more revolutions per minute, with about 22 r.p.m. being recommended for the screw arrangement shown in FIG. 15, below. Somewhat higher speeds may be optimum for the screws of FIG. 16, below. Simple experiments should readily show what speeds are best for operation of devices with screws of different designs and dimensions.

In addition to neither *Varvat* nor *Buttner* disclosing or suggesting “a [channel] radius of between 0.25 m and 0.75 m [,]” the Examiner contends that a change in size is generally recognized as being within the level of ordinary skill in the art. Applicants respectfully disagree based on at least the following.

According to *MPEP, Section 2144.04(IV)(A)*:

In Gardner v. TEC Systems, Inc., 725 F.2d 1338, 220 USPQ 777 (Fed. Cir. 1984), cert. denied, 469 U.S. 830, 225 USPQ 232 (1984), the Federal Circuit held that, where the only difference between the prior art and the claims was a recitation of relative dimensions of the claimed device and a device having the claimed relative dimensions would not perform differently than the prior

art device, the claimed device was not patentably distinct from the prior art device.

In contrast, the claimed dimension including “a radius of between 0.25 m and 0.75 m,” performs differently as a result of the selected range of radius and is not a mere relative dimension. By way of example and not limitation, **paragraph [0115]** of Applicants’ published application describes:

If the radius R of each channel 12 is small, obviously, each channel cannot hold much organic waste. Therefore, for the same processing power, the vessel would need to comprise many individual channels together with the associated axles, paddles and motors, making the entire vessel complex and expensive. If the radius R of each channel 12 is large, the paddles and axle 16 must be mechanically very strong, because the torque exerted on each paddle as it rotates through the organic waste will be large. This increases the cost of the machine and its component parts. In addition, with a large channel radius R, the increased force on the paddles acting on an increased mass of static material increases the risk that the organic waste eventually forms a rock-hard deposit, which is difficult, expensive and unpleasant to remove. The optimum channel radius has been found to be in the range 0.25m to 0.75m or, even more advantageously, in the range 0.3m to 0.6m.

For at least the foregoing reasons, Applicants respectfully submit that claim 1 is directed to patentable subject matter. Reconsideration and withdrawal of this rejection is, therefore, respectfully requested.

Independent Claim 15

Claim 15 recites, *inter alia*:

“A vessel for drying organic waste, the vessel comprising:
at least two elongate adjacent channels, each channel having a length and a substantially segment shaped cross-section;
...
an interface between the two channels;

... a first heater for heating the channels, wherein, during drying, the axles associated with adjacent channels are arranged to rotate in opposite directions and the interface between adjacent channels is heated so as to enhance breakdown of the organic waste at the interface." (Emphasis added)

According to *column 4, lines 48-52 of Varvat*, the incinerated gases egressing the incineration chamber 42 pass through a conduit 46 and it is returned to the main processing zone in order to follow the serpentine path defined by the trough banks 20 and the sets of baffles 32. The path of the heated gases discharged from the incinerating chamber 42 is illustrated by the arrows 48. It will be appreciated that the flow of hot gas follows the path along which the particulate material is advanced in order to heat the particulate material and cause same to release water and noxious vapors.

The heated gases follow the path defined by the trough bank 20 and *not* the trough 22. *Varvat* does not, therefore disclose or suggest both "a first heater for heating the channels" and an "interface between adjacent channels [that] is heated [,]" as recited in claim 15. *Buttner* does nothing to cure this deficiency of *Varvat*.

For at least the foregoing reasons, Applicants respectfully submit that claim 15 is directed to patentable subject matter. Reconsideration and withdrawal of this rejection is, therefore, respectfully requested.

Independent Claim 31

Claim 31 recites:

"A method for drying organic waste, comprising the steps of:
mixing and heating the organic waste to form an organic paste;
then adding the organic paste to a first organic powder to form a mixture and mixing and heating the mixture,

wherein the rate of addition of the organic paste to the first organic powder is such that the resulting mixture is substantially in powder form.” (Emphasis added)

Neither *Buttner* nor *Van Den Broek* disclose or suggest “adding the organic paste to a first organic powder to form a mixture and mixing and heating the mixture[,]” where “the rate of addition of the organic paste to the first organic powder is such that the resulting mixture is substantially in powder form.”

The Examiner concedes that *Buttner* does not teach the above limitation. However, the Examiner alleges that *Van Den Broek* describes “adding the organic paste to a first organic powder to form a mixture and mixing and heating the mixture[,]” where “the rate of addition of the organic paste to the first organic powder is such that the resulting mixture is substantially in powder form.” Applicants’ respectfully disagree based on the following.

According to *column 3, lines 4-21* of *Van Den Broek*, in FIG. 3, a dosing screw conveyor 26 having a variable speed drive takes the concentrated stream from the hopper 24 and feeds it to a mixer 28 at a controlled rate. The mixer combines dehydrated particulate matter with the concentrated stream to provide a feedstock having a moisture content of from 30 to 50 percent. An inclined screw conveyor 30 transports the feedstock to a drier feed screw conveyor 32 which includes a variable speed drive for controllably feeding the sludge feedstock into a rotary drum drier 34. The rotary drum drier 34 is a variable speed rotation drum drier for drying and pelletizing the sewage sludge. The rotary drum drier 34 includes vanes 36 that tumble and advance the sewage feedstock through the rotary drum drier. After drying, the dehydrated particulate sludge is deposited on a screw conveyor 48 via the rotary valve 45.

In contrast, *Van Den Broek’s* mixing of dehydrated particulate matter with a concentrated stream to provide a feedstock having moisture content of 30 to 50 percent, and using a rotary drum drier 34 for drying and pelletizing sewage sludge does not contemplate “adding the

organic paste to a first organic powder to form a mixture and mixing and heating the mixture[,]” where “the rate of addition of the organic paste to the first organic powder is such that the resulting mixture is substantially in powder form.” Particularly, *Van Den Broek* is silent as to “[a] rate of addition of [an] organic paste to [an organic powder .]”

For at least the foregoing reasons, Applicants respectfully submit that claim 31 is directed to patentable subject matter. Reconsideration and withdrawal of this rejection is, therefore, respectfully requested. For at least the same or similar reason, claim 39 is also patentable over *Buttner* and *Van Den Broek*.

Independent Claim 49

Claim 49, as amended, recites:

“A method for drying organic waste using a vessel including at least two elongate adjacent channels each having a substantially segment shaped cross-section and an interface between the two channels, the method comprising the steps of:

mixing and heating a first quantity of organic waste to form an organic powder, wherein the heating comprises heating the interface so as to enhance breakdown of the organic waste at the interface and heating the channels; and

converting a portion of the organic powder to heat a second quantity of organic waste.” (Emphasis added)

Neither *Buttner* nor *Van Den Broek* disclose or contemplate “mixing and heating a first quantity of organic waste to form an organic powder, wherein the heating comprises heating the interface so as to enhance breakdown of the organic waste at the interface and heating the channels [,]” as recited in claim 49.

According to *column 3, lines 21-46 of Van Den Broek*, a rotary drum drier 34 is connected to a combustion chamber 38, or furnace, which includes a burner 40 in the embodiment shown for burning gas or liquid fuel such as natural gas or oil. Alternatively, a solid fuel furnace could be used with the system of the present invention. A suitable furnace apparatus

would include a moving grid furnace, a fluid-bed furnace, a shelf furnace or an underfeed stoker furnace. Fuels usable in the solid fuel furnaces may include wood, coal, refuse derived fuel or dehydrated particulate sludge. Combustion products originating from the burner 40 are intermixed with makeup air in the combustion chamber 38 and form a hot gaseous effluent. The hot gaseous effluent flows through the rotary drum drier 34 as shown by arrows A as the sludge feedstock tumbles about the vanes as shown by arrows B. The temperature of the gaseous effluent is controlled to maintain a temperature below the ignition point of the feedstock. The quantity of gases is maintained at a high enough level to permit absorption of the desired quantity of moisture from the sludge feedstock as it passes through the drier. The gaseous effluent entering the rotary drum drier exits as a cooler and more moisture laden gaseous discharge containing entrained materials such as dust particles and gases emitted from the sludge feedstock.

Thus, *Van Den Broek* fails to disclose or contemplate “mixing and heating a first quantity of organic waste to form an organic powder, wherein the heating comprises heating the interface so as to enhance breakdown of the organic waste at the interface and heating the channels [,]” as recited in claim 49. Moreover, *Buttner* does nothing to cure this deficiency of *Van Den Broek*.

For at least the same or similar reason to that discussed above in relation to claim 15, claim 49 is also patentable over *Buttner* and *Van Den Broek*. Reconsideration and withdrawal of this rejection is, therefore, respectfully requested.

Independent Claim 55

Claim 55, as amended, recites:

“Apparatus for drying organic waste comprising:

a vessel for mixing and heating a first quantity of organic waste to form an organic powder, wherein the vessel comprises:
at least two elongate adjacent channels each having a substantially segment shaped cross-section and an interface between the two channels,
a first heater for heating the channels, and
a second heater for heating the interface,
wherein, the interface between adjacent channels is heated so as to enhance breakdown of the organic waste at the interface; and;
a conversion unit for converting a portion of the organic powder to generate heat for heating a second quantity of organic waste.”
(Emphasis added)

Neither of the cited references disclose nor contemplate “a first heater for heating the channels” and “a second heater for heating the interface [,]” as recited in amended claim 55.

For at least this reason, Applicants respectfully submit that claim 55 is also directed to patentable subject matter. Reconsideration and withdrawal of this rejection is, therefore, respectfully requested.

V. DEPENDENT CLAIMS

The other claims are dependent both directly and indirectly from independent claims 1, 15, 31, 39, 49, and 55, and are therefore believed patentable for at least the same reasons. Since each dependent claim is also deemed to define an additional aspect of the invention, however, the individual reconsideration of the patentability of each on its own merits is respectfully requested.

CONCLUSION

In view of the foregoing, it is believed that all of the claims in this application are patentable over the prior art, and an early and favorable consideration thereof is solicited.

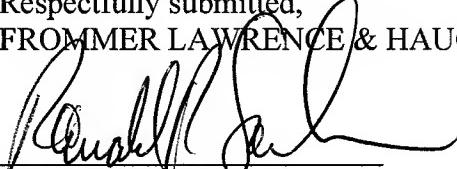
Statements appearing above with respect to the disclosures in the cited references

represent the present opinions of the Applicant's undersigned attorney and, in the event that the Examiner disagrees with any such opinions, it is respectfully requested that the Examiner specifically indicate those portions of the respective reference providing the basis for a contrary view.

Please charge any fees incurred by reason of this response and not paid herewith to Deposit Account No. 50-0320.

Respectfully submitted,
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